ABSTRACT:

Occupationalhealth studies the interaction of work and health, especially the long-term effect of chemicals to health. In this paper an InherentOccupationalHealth Index has been developed for assessing the health risks of process routes during processresearch and developmentstage. The method takes into account both the hazard from the chemicals present and the potential for the exposure of workers to the chemicals. The index can be used either for determining the level of inherentoccupationalhealth hazards or comparing alternative process routes for these risks. The method is tailored for the processresearch and developmentstage by including only such properties of chemicals and operating conditions of process, which are available already in this early stage. In the end of this paper the approach is demonstrated by comparing the inherentoccupational healthiness of six methyl methacrylate process routes using three different types of index calculations; additive-type, average-type, and worst case-type. The study discloses that the average- and worst case-based approaches analyze the characteristics of a route better than the additive calculation, which is greatly affected by the number of steps in the route. A quantitative standard scale for the index is also developed to allow health level assessment of a single process.